REMARKS

The present amendment is submitted in response to the Office Action dated May 9, 2005, which set a three-month period for response, making this amendment due by August 9, 2005.

Claims 1-8 and 10 are pending in this application.

In the Office Action, claims 1-10 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Claims 1-4 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,217974 to Holcomb. Claims 5-7 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Holcomb in view of U.S. Patent No. 1,814,574 to Tatter. Claims 5 and 7-8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Holcomb in view of U.S. Patent No. 5,841,947 to Weilant. Claims 9-10 were rejected under 35 U.S.C. 103(a) as being unpatentable over Holcomb in view of U.S. Patent No. 2,501,096 to Robins et al.

In the present amendment, the specification was amended to add standard U.S. sectional headings and to delete reference to the claims.

Claim 1 was amended to add the features of claim 9, which has been canceled. Claim 10 was amended to depend from claim 1, rather than claim 9.

The present invention as defined in amended claim 1 is directed to the exemplary embodiment shown in the drawing. Amended claim 1 defines a friction brake, which is combined with a band brake. An actuating device of the friction brake has a screw gear 22, with which for actuating the friction brake 10,

a friction brake liner 18 can be pressed against a brake body 14 to be braked. For actuating the friction brake, the band brake 34 is actuated, whose braking band 36 engages eccentrically to a rotatable drive element 26 of the screw gear 22.

In the exemplary embodiment shown in the present application, the brake band 36 is wound about the rotatable drive element 26 of the screw gear 22. The drive element 26 is a nut in the exemplary embodiment. A tensile force acting on the brake band 36 upon actuation of the band brake 34 is transmitted onto the drive element 26 of the screw gear 22, rotates the drive element 26, and thereby presses the friction brake liner 18 of the friction brake against the brake body 14. The actuation of the friction brake takes place, then, by means of the tension of the brake band 36, which engages eccentrically on the drive element 26 of the screw gear 22, which forms the actuating device of the friction brake.

The cited reference to Holcomb discloses a friction brake, which is combined with a band brake. The friction brake of Holcomb is a lamella brake with lamella 36, 38 (Figure 2). For pressing the lamella 36, 38 against one another, the brake of Holcomb has two oppositely rotatable rings 42, 44 with a ramp mechanism. Spheres 52, which roll on the ramps 50 of the rings 42, 44, form the ramp mechanism. The ramps 50 are shown in Figure 1 with dashed lines. By rotating the rings 42, 44 against one another, the rings 42, 44 are axially pressed out of one another and the ring 42 presses the lamella 36, 38 of the lamella brake against one another. The lamella brake is thereby actuated.

On of the two rings 42 is non-rotatably and axially displaceably connected with a shaft 32 via a multi-groove profile. The other ring 44 is tensioned by tension springs 46 axially to one ring 42. Therefore, both rings 42, 44 rotate with the shaft 32, in contrast to the present invention. With the present invention, the drive element 24 of the screw gear 22 does not rotate in that manner; rather it is rotates only upon actuation of the friction brake about a defined rotation path and does not rotate with the brake body 14 to be braked with an actuated friction brake.

With Holcomb, the actuating device of the bank brake with the hydraulic pistons 14, 16 engages via the lever 60, 62 at ends of a brake band 54, 64. The brake band 54, 64 is wound about the ring 42, 44, but is not attached to it. The rings 42, 44 of Holcomb correspond to the drum 16 of the band brake 34 of the friction brake according to the present application.

For actuating the brake of Holcomb, a tension force is exerted on the ends of the brake band 54, which brakes both rings 42, 44. Based on the greater contact surface of the brake band 54, 64 with the other ring 44 than with the ring 42, both rings 42, 44 are rotated against one another (column 2, lines 35-48). The ramp mechanism 50, 52 presses both rings 42, 44 axially from one another, so that the lamella 36, 38 pressed against one another and the lamella brake is actuated.

In addition, also the different action mechanism of the brake of Holcomb compared with that of the present invention should be noted. With Holcomb, for actuating the band brake, a tensile force is exerted on both ends of the brake

band 54, 64. This is not possible with the band brake 34 of the present invention, because at least one end of the brake band 36 engages eccentrically to the drive element 26 of the screw gear 22. The actuation of the band brake 34 of the present invention takes place with the tensioning device 40, whose two tensioning elements 53, 60 engage against the sections 64, 66 of the brake band 36 between the drum 16 and the drive element 26 of the screw gear 22.

A further difference to Holcomb is that with the present invention, the drive element 26 of the screw gear 22 cannot rotate with the brake body 14 and the drum 16, because an end 38 of the brake band 36 engages on the drive element 26. With Holcomb, both rings 42, 44 rotate with the shaft 32. The transmission of a force from the brake band 54, 64 onto the rings 42, 44 take place in Holcomb as a result of friction, while with the present invention, a tensile force of the brake band 36 on the drive element 26 is transferred, without a relative movement occurring between the brake band 36 and the drive element 26 and without friction between the brake band 36 and the drive element 26.

The friction brake according to the present invention as defined in amended claim 1 therefore is not anticipated by Holcomb.

With regard to claims 9 and 10 of the present application, the Examiner combines Holcomb with Robins to support the rejection under Section 103. The subject matter of Robins is a safety device for a lifting device. Its object is to provide a maximum lifting force to avoid damage (column 1, lines 5-16, column 2, lines 48-55). The Examiner agues that Robin discloses an actuator 17 with a screw and a nut, and uses a sphere/ramp mechanism, as in Holcomb, and

screw/nut actuators are known as equivalent constructions, and therefore, the use of the screw/nut actuator of Robins instead of the sphere/ramp mechanism of Holcomb is obvious.

The Applicants disagree that the screw/nut actuator is a known and obvious exchange means for a sphere/ramp mechanism. A screw/nut actuator theoretically makes possible axial displacement of the screw or spindle to any width by rotation of the nut to any degree. In practice, the displacement or adjustment path of the spindle is defined by its length; the nut can be rotated in many rotations.

In contrast thereto, with a sphere/ramp mechanism, the axial movement is limited by the depth of the ramps at a fraction of the adjustment path of a screw/nut actuator and the rotation of both ramp elements, that is both rings 42, 44 of Holcomb against one another is limited by the length of the ramps in the circumferential direction. Constructively, with a sphere/ramp mechanism, the rotation of the rings against one another is limited to a fraction, that is, less then one rotation, while in contrast, a screw/nut actuator permits multiple rotations of the nut. A screw/nut actuator therefore is not an equivalent means for a sphere/ramp mechanism.

A further different to the friction brake of the present invention is that with Holcomb, the actuating mechanism for the band brake engages on both ends of the brake band 54, 64. In this manner, it is impossible that one end of the brake band 54, 64 can engage a nut of a screw/nut actuator, in the present invention, on the drive element 26 of the screw gear 22. Also, the further references cited

in the Office Action, which have a band brake, show engagement of their actuating devices to the ends of the respective brake band, so that also these other references do not teach attaching at least one end of the brake band to a nut of a screw/nut actuator.

Another difference between the present invention and the Holcomb reference is that both rings 42, 44 of Holcomb rotate with the shaft 32. The force transmission upon braking takes place as a frictional force of the brake band 54, 64 on the rotating rings 42, 44; therefore, a relative movement between the two rings 42, 44 and the brake band 54, 64 takes place. Also this excludes that an end of the brake band is attached to at least one of the two rings 42, 44, since in this case, no relative movement between the rings 42, 44 and the brake band 54, 64 would be possible.

With the frictional brake of the present invention, the tensile force of the brake band 36 is the actuating force for actuating the friction brake transmitted to the drive element 26 of the screw gear and not a frictional force as in Holcomb. There is no relative movement between the brake band 36 and the drive element 26 of the screw gear.

Because Holcomb fails to disclose or suggest the above discussed features of amended claim 1, the rejection under Section 102 must be withdrawn. Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. ***Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.***, 221 USPQ 481, 485 (Fed. Cir. 1984).

Likewise, the combinations of the cited references do not support the rejections under Section 103, when these references fail to disclose or suggest these features. When establishing obviousness under Section 103, it is not pertinent whether the prior art device possess the functional characteristics of the claimed invention, if the reference does not describe or suggest its structure. ***In re Mills***, 16 USPQ 2d 1430, 1432-33 (Fed. Cir. 1990).

For the reasons set forth above, the Applicants respectfully submit that claims 1-8 and 10 are patentable over the cited art. The Applicants further request withdrawal of the rejections under 35 U.S.C. 102 and 103 and reconsideration of the claims as herein amended.

Should the Examiner have any further comments or suggestions, the undersigned would very much welcome a telephone call in order to discuss appropriate claim language that will place the application into condition for allowance.

Respectfully submitted,

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